Washington State Department of Transportation

Memorandum

November 5, 2002

TO: John F. Conrad
MS 47316

FROM: Kevin J. Dayton/Ron Howard
705-7821/705-7823

SUBJECT: CRIPs
Contractors' Cost Reduction Incentive Proposals
Year 2002 (to date) Experience

This report has been prepared to cover the nine-months period from January through September, 2002.

Value Engineering in the Construction area has tailed off significantly during the first nine months of this year. While the number of proposals approved during this period remained steady compared with the previous report, the savings to the State decreased substantially. We continue to pursue some savings in this arena, but at a very slow pace. We are looking at only three additional proposals with a combined value of perhaps $200,000.

The results are as follows:

Period	Approved	Savings to the State	Removed from List
Jan – Sept, 2002	**11 proposals**	**$146,536**	**2 proposals**

These are the actual savings of the proposals in terms of money. One of these approved ideas also included a reduction in contract time. Reduced durations save administrative costs for both WSDOT and the Contractor and provide a major benefit to the traveling public. All of these proposals also include a transfer of the constructibility risk from WSDOT to the Contractor. These risk transfers, together with the evidence of teamwork and partnering that CRIPs represent, provide intangible benefits in addition to the face value of the proposals.

By comparison, CRIP savings in the second half of 2001 were $562,547. Looking to the future, we are currently reviewing 3 CRIPs with potential savings of approximately $200,000

A description of the accepted CRIPs and their potential application to future designs is attached. We find it interesting to note that one of these cost-savings proposals (Contract 6221, Change Order 11) was on a project where we were acting as agents for the City of Kirkland. The savings from that proposal went to the City.

In view of the reduced level of CRIP activity in the past two or three years, we have decided to abandon the semi-annual frequency of this report. Beginning with this report, CRIP results will be reported annually, to coincide with the Department's annual report on Value Engineering in October.

KJD/RH:cd
Attachments (report and spreadsheet)

cc/att: Don Mathis, FHWA, 40943
Tony Allen, 47365
Jugesh Kapur, 47340
Don Nelson, 47324
Harold Peterfeso, 47330
Toby Rickman, 47344
Rick Smith, 47325
Jim Walter, 47365
Ralph Robertson, Eastern Region
Dan Sarles, North Central Region
Ron Paananen, NW Region, NB82-240
Jerry Walter, Olympic Region, 7440
Phil Nickson, South Central Region
Doug Ficco, Southwest Region, S-15
Ken Smith, 47330

APPROVED CRIPS – Period Ending 9/30/2002

REVISED CONSTRUCTION METHOD SAVES TIME AND DOLLARS
(C-5694, C.O.71)

This contract includes the reconstruction of SR 405 between Bothell and Swamp Creek. The plans called for constructing retaining walls adjacent to a new channel for Martha Lake Creek. The creek, presently in an existing culvert, was to be diverted to a large bypass culvert during construction. The Contractor proposed to eliminate the bypass and perform the wall work with the existing drainage in operation. This required a redesign of two conflicting panels and special care to protect the creek and perform the work during a salmon window. The resulting savings of $4,000 was split, with the State's share amounting to $1,957. This could have been done in design, but was not because of the minor cost savings and a high risk of stream damage. When the contractor agreed to take on this risk, the proposal became viable.

REVISED POUR SEQUENCE SHORTENED DURATION
(C-5817, C.O.43)

This project is the rehabilitation of bridges on SR 529 north of Everett. Included in the plans are new decks for Bridge 20W. The contract required a four-step pour sequence to allow the post-pour placements of contraction joints. The Contractor developed a plan that allowed the joints to be installed prior to the pour, resulting in no need for sequencing and allowing a single, monolithic deck pour for each of three spans. The resulting cost savings were minor, consisting only of traffic control reductions for two days of work. However, the big advantage was two less days of traffic impacts. The State's share of the savings was $2,137. This could have been done in design, but wasn't highly obvious and depends on the contractor's willingness to take on some level of constructability risk.

TEMPORARY SIGNAL SAVES FLAGGING COST
(C-5829, C.O.8)

This project provided for rehabilitation of the Biggs Rapids Bridge on SR 97 south of Goldendale. Included in the planned traffic control for part of the contract was a single-lane, two-way traffic configuration, operated by two flaggers. The Contractor proposed eliminating one of the flaggers by installing a temporary traffic signal that would be operated by a single flagger. The resulting savings was calculated to be over $65,000, with the State's share at $32,512.53. This approach was conceived during design with a State-furnished temporary signal. However, the planned signal did not have the capacity to handle all of the needed controls. The Contractor's system replaced the State's signal and was able to provide control for all of the two-way detour operation.

APPROVED CRIPS – Period Ending 9/30/2002

SHOTCRETE FASCIA WALL INSTEAD OF CAST-IN-PLACE
(C-5970, C.O.36)

This project, to reconstruct a portion of SR 16 west of I-5, included a drainage pond that featured a fascia wall. The plans called for this wall to be cast in forms. The Contractor proposed a change to use the shotcrete method to construct the wall in the same configuration. There was no structural objection and the work proceeded. The savings here were small, with the State's share amounting to $2,751. There was no contract time savings, as this work was not on the critical path. The only real value of this proposal was in the evidence of partnering and the willingness of the State's office to allow the contractor to try new ideas. There is no reason to suggest that this method should be included in future designs of similar installations.

REVISED SIGNAL INSTALLATION SAVES BARRIER
(C-6090, C.O.1)

This was a project for deck rehabilitation on a bridge over Panther Creek on the North Cascades Highway. The plans called for one-lane, two-way traffic controlled by a temporary signal. The signal was to be installed in such a way that temporary barrier, with impact attenuators at each end would be necessary. The Contractor proposed installing the signal behind the existing guardrail, building up the slope where necessary, deleting two impact devices and reducing the amount of temporary concrete barrier required. The resulting savings was over $6,500, with the State's share at $3,281.25. This approach took some significant constructability risk with the slope and is not recommended for future designs.

WHY DIG IT UP WHEN YOU DON'T NEED TO?
(C-6137, C.O.16)

This contract puts the finishing touches on a series of jobs to upgrade SR 405 between Bellevue and Bothell. Included in the work is the relocation of permanent concrete median barrier. The details of the work called for the existing barrier to be demolished and reconstructed in a slightly different alignment to create Washington State Patrol enforcement pockets. The entire median area was to be excavated and reconstructed to accommodate the realignment of the barrier. The Contractor proposed a change in one area to excavate only where necessary to construct the barrier itself. The revision required other modifications, including drainage connections and some handwork, but the net savings was over $100,000. The State's share of the savings amounted to $54,030. This approach to constructing the barrier could have been developed during design, and the State could have enjoyed the entire savings.

APPROVED CRIPS – Period Ending 9/30/2002

INSTALL ELECTRICAL ITEMS DURING WEEKEND CLOSURE
(C-6137, C.O.18)

A much more modest proposal on the same I-405 project nevertheless yielded a tidy savings for both the Contractor and the State. The plans called for installation of electrical junction boxes during lane closure traffic control. The Contractor noticed that, with some careful organizing, this work could be done during a full closure on a weekend. The extra costs of premium time and some lost efficiency were offset by traffic control savings. The parties split nearly $9,000, with the State's share at $4,383. We would not recommend trying to accomplish this in design. The necessary effort and coordination work required of the Contractor would be most effective in a voluntary/incentive atmosphere.

CHANGE SCREENING & LIGHTING DESIGN TO STANDARD ITEMS
(C-6221, C.O.11)

This is a project in the City of Kirkland. It is a City project, being administered by a WSDOT office. The project is the construction of a new bridge at NE 100th Street. Included in the bridge design was custom-fabricated bridge screening and screen-mounted fluorescent lights. The contractor noted the cost of the custom elements and proposed alternatives that were commercially available and less costly. The screening became vinyl-coated chain link fabric and the lights were changed to metal-halide fixtures, recessed into the bridge railing. The revised design was acceptable to the City and saved them their share of the $51,000 savings. The original design was developed based on California experience that indicated cost savings. When the contractor demonstrated that this was not true in Kirkland, the change was readily accepted. We can consider this a lesson learned and move on.

REVISED GUARDRAIL CONNECTION SAVES MONEY
(C-6245, C.O.2)

This project provides seismic retrofits for bridges on SR 5 and SR 518 south of Seattle. Included at one of the bridges is a detail to place temporary barrier with impact attenuators at each end. The contractor proposes to eliminate the impact attenuators by fastening the barrier directly to existing retaining walls, thus eliminating the end barrier conditions. The resulting savings of nearly $11,000 was split with the State receiving $5,450. This method of terminating the barrier could have been included in the original design, and all the savings could have been realized by the State.

APPROVED CRIPS – Period Ending 9/30/2002

ALTERNATE WORK METHOD SAVES TRAFFIC COSTS
(C-6276, C.O.2)

This project constructs a new bridge on SR 2, the Stevens Pass Highway, near the town of Index. As part of the work, the contract calls for a staged construction of embankment widening. This work is done behind temporary concrete barrier in two steps. The Contractor proposed the deletion of the detour work and the staging. Instead, the work would be done with a one-lane two-way traffic setup and would be intensely prosecuted to be completed in a single, 16-hour shift. The savings in traffic control, barrier and pavement marking amounted to nearly $17,000, with the State's share at $8,475. As always, we recommend against trying to mandate this kind of voluntary effort in the plans. The success of such an effort depends entirely on the determination of the contractor to carry out his own idea.

CONCRETE IN A TRUCK COSTS LESS THAN SACKS
(C-6318, C.O.7)

This paving project on SR 12 in the north part of Yakima contained rehabilitation work on several bridges. Where pavement seats were to be replaced, the plans specified the use of one of five special-mix concretes. These come in bags and are labor-intensive. A subcontractor for the bridge work proposed a substitution of a "hot" concrete mix that could be delivered in trucks. This proved to be structurally acceptable and the proposal was approved. The resulting savings for the State was $8,380. The use of sack concrete versus truck mix involves several variables. The location of the job relative to a batch plant is important. The amount of time allowed for the mix to set up makes a difference. Selecting sack mixes is a safe, albeit more expensive choice. We think the designers should continue with present methods of selecting material and let the successful bidder find the better path at his own risk.

REMOVED FROM LIST – Period Ending 9/30/2002

CONTRACTOR WITHDREW ASPHALT SUBSTITUTION

On a freeway project with asphalt pavement, the contractor initially proposed the substitution of Class E for Class A. Despite encouragement to investigate further, the proposal was withdrawn without explanation.

SUBSTITUTION PROPOSAL DID NOT PROVIDE ADEQUATE PRODUCT

The Contractor on a paving project on SR 20 suggested a substitution. Instead of using the specified Bituminous Surface treatment, the proposal was to apply a dust palliative. The proposal was rejected as the product would not have been adequate.